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(54) **Process for the selective encapsulation of an electrically conductive structure in a semiconductor device.**

(57) A process for fabricating an improved semiconductor device (10) is disclosed wherein a protective layer of Al_2O_3 (24) is selectively formed to encapsulate a refractory-metal conductor. (14) To form the Al_2O_3 layer, (24) first an Al/refractory-metal alloy (22) is selectively formed on the surface of the refractory-metal conductor, (14) then the Al/refractory-metal alloy (22) is reacted with O_2 . The resulting Al_2O_3 encapsulation layer acts (24) as an O_2 diffusion barrier preventing the oxidation of the refractory-metal during subsequent process steps used to fabricate the semiconductor device. In addition, the Al_2O_3 layer (24) improves the mechanical compatibility of the refractory-metal conductor (14) with other materials used to construct the semiconductor device, such as, for example, improving the adhesion of an overlying layer of passivation glass to the refractory-metal conductor (14).

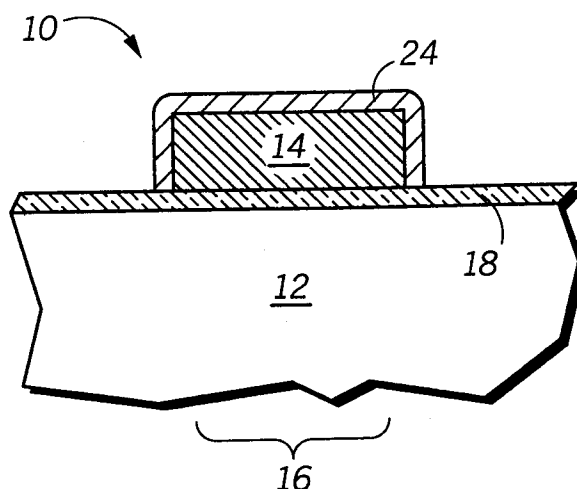


FIG.1-d



European Patent
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EUROPEAN SEARCH REPORT

Application Number

EP 91 30 4498

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EP-A-0 190 820 (TEKTRONIX) * abstract; figure 7 * ---	1	H01L23/485 H01L21/316 H01L21/48
A	EP-A-0 089 559 (IBM) * abstract; figures * ---	1	
A	JOURNAL OF APPLIED PHYSICS. vol. 65, no. 5, 1 March 1989, NEW YORK US pages 2095 - 2097; G.P. BURNS: 'Titanium Dioxide Dielectric Films Formed by Rapid Thermal Oxidation' * the whole document * ---	6,7	
A	DE-A-3 026 026 (TOKYO SHIBAURA DENKI K.K.) * claims; figures 7,1 * ---	1,6,7	
A	GB-A-2 181 893 (MITSUBISHI DENKI K.K.) -----		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			H01L
Place of search THE HAGUE		Date of completion of the search 21 JANUARY 1992	Examiner PROHASKA G.A.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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